CLAIMS

1. Method for remote sensing objects, characterised in that said objects are in a condition of thermal emission that is variable during time, and in that it comprises the following phases:

A. acquisition of a map of the radiation coming from the surface of the portion of space within or behind which the object to be sensed is supposed to be, at least at a first time t_1 and a second time t_2, such times being successive to each other;

B. acquisition of a map of the radiation coming from the surface of said portion of space, considered at a third instant t^* different from said at least two times t_1 and t_2;

C. summation of the maps of said at least two times t_1 and t_2 as obtained from the phase A;

D. subtraction of the map at said time t^* as resulting from the phase B, from the sum as resulting from the phase C;

E. comparison between the values of each portion of map area as resulting from the phase D and a threshold value of the radiation intensity for the material of the sought objects;

F. identification of the material of the object under investigation with the sought material, when the result of the comparison of the phase E has provided the presence of at least a certain number n of area portions of said space portion, with $n \geq 1$, whose value for said radiation is larger than said threshold value.

2. Method according to claim 1, characterised in that, before said phase A, one performs a phase A1 of energy radiance of the area portion within or behind which the object to sense is supposed to be, by radiating energy of a predetermined frequency and predetermined power.

3. Method according to claim 2, characterised in that, after phase F, in the case that the object's material was not identified with the sought material, one defines a new radiating power and a new radiance frequency and go back to a new phase A1.

4. Method according to claim 2 or 3, characterised in that said radiance is composed by a group of one or more time intervals of radiance, said intervals being contiguous or non-contiguous during time, and, in the case they are non-contiguous, during the time span between any two of said intervals, the radiance power being substantially vanishing.

5. Method according to any of the preceding claims from 2 to 4, characterised in that said at least two times t_1 and t_2 according to phase A and said at least a time t^* according to phase B are successive to the first time interval of said group of radiance intervals.

6. Method according to any of the preceding claims from 2 to 5, characterised in that said at least two times t_1 and t_2 according to phase A and said at least a time t^* according to phase B are comprised between the first and the last time interval of said group of radiance intervals.

7. Method according to any of the preceding claims from 2 to 6, characterised in that said at least two times t_1 and t_2 according to phase A and said at least a time t^* according to phase B are successive to the last time interval of said group of radiance intervals.

8. Method according to any of the preceding claims, characterised in that, in addition to phases from A or A1 to F, or instead of phases E or F, said method comprises the following successive phases:

G. in the case that the material of the investigated object is identified in the phase F, comparison, for each portion of the considered area, of the three values acquired in phases A and B with the curve of response to the radiance of the material the sought object is supposed to be made;

H. in the case that the result of the comparison of phase G is negative, that is the curve of response to the radiance of the investigated object material, does not clearly agree with the run of values acquired in phases A and B, definition of a new radiance-power and a new radiance-frequency and go back to phase A1;

I. in the case that the result of the comparison of phase H is negative, that is the curve of response to the radiance of the material of the investigated object does clearly agree with the run of values acquired in phases A and B, identification of the material with the one corresponding to the curve of response to radiance utilised in phases G and H.

9. Method according to any of the preceding claims, characterised in that, prior to phase A or A1, the following preliminar phases are performed:

- definition of the minimal dimensions of said one or more sought objects;

- definition of materials to be identified, in terms of values of their characteristic physical parameters;

- definition of the background in terms of values of the same characteristic physical parameters chosen for the sought objects;

- input of the detection characteristics in the device utilising the acquisition sensor, that is

i) values of time spans between said groups of consecutive radiances and/or values of time spans between time intervals belonging to said group of intervals of each radiance;

ii) the set of M parameters, with $M \geq 1$, P_1, $P_2, \ldots$, P_M, to be measured;

iii) values of said at least two acquisition times t_1 and t_2 according to phase A and said at least a acquisition time t^* according to phase B;

iv) values of the J frequencies, with $J \geq 1$, f_1, $f_2, \ldots$ f_J, utilised in the radiances.

v) values of the L frequencies, with $L \geq 1$, f'_1, $f'_2, \ldots$ f'_L, utilised in sensing or mapping.

10. Method according to any of the preceding claims from 2 to 9, caricaturised in that the radiance power is comprised in the interval between 0.1 and 1000 times the radiance power that said one or more objects provide in the equilibrium conditions.

11. Method according to any of the preceding claims from 2 to 10, caricaturised in that the radiance power is comprised in the interval between 0.5 and 600 times the radiance power that said one or more objects provide in the equilibrium conditions.

12. Method according to any of the preceding claims from 2 to 11, characterised in that the single radiance takes place during a time comprised between 1 and 30 ms.

13. Method according to any of the preceding claims from 2 to 12, characterised in that said at least two acquisitions at times t_1 and t_2 occur successively to a first radiance interval, after a time comprised between 0.5 and 60 s from the beginning or from the end of said interval.

14. Method according to any of the preceding claims from 2 to 13, characterised in that said at least two acquisitions at times t_1 and t_2 occur successively to a first radiance interval, after a time comprised between 0.8 and 8 s from the beginning or from the end of said interval.

15. Method according to any of the preceding claims from 2 to 14, characterised in that the radiance frequency is comprised between 350 nm and 10 m.

16. Method according to any of the preceding claims from 2 to 15, characterised in that the radiance frequency is comprised between 0.1 and 50 μm.

17. Method according to any of the preceding claims, characterised in that said acquisition at time t^* is successive to said at least two acquisitions at times t_1 and t_2.

18. Method according to any of the preceding claims, characterised in that said acquisition of radiation emission values at time t^* is placed in correspondence of the tail of the response of the supposed object material, said tail emission being substantially a background emission.

19. Method according to any of the preceding claims, characterised in that the wavelength of reception is comprised between 350 nm and 10 m.

20. Method according to any of the preceding claims, characterised in that the radiance wavelength is comprised between 0.1 and 50 μm.

21. Method according to any of the preceding claims, characterised in that, in the case of thermal sensing, the thermocamera is placed up to 30 m from the investigated area.

22. Method according to any of the preceding claims, characterised in that the object to be individuated is made of metallic material.

23. Method according to any of the preceding claims, characterised in that the object to be individuated is made of plastic material.

24. Method according to any of the preceding claims, characterised in that the investigated area is comprised between 0.5 and 500 m^2.

25. Method according to any of the preceding claims, characterised in that the investigated area is comprised between 1 e 30 cm^2.

26. Electronic device, characterised in that it is designed to perform the method for thermal remote sensing objects according to any of the preceding claims from 1 to 25.

27. Computer program characterised in that it comprises code means embodied for performing, when they operate on an electronic system, the method for thermal sensing objects according to any of the preceding claims from 1 to 25.

28. Memory support, readable by a computer, having said program stored in it, characterised in that the program is the program according to claim 27.

29. Device for sensing objects, characterised in that it implements a method for sensing objects, said method being the method according to any of the claims from 1 to 25.